REMARKS

Claims 1-17, 24, 25, 27-30 and 32-34 remain pending in the application, and claims 1, 2, 5, 8, 9, 12, 15-17, 24, 25, 29, 30 and 34 stand rejected. Claims 3, 4, 6, 7, 10, 11, 13, 14, 27, 28, 32 and 33 were withdrawn in view of a restriction requirement.

Applicants would like to thank the Examiner, George R. Koch, III, for the courtesies extended during the personal interview conducted with Applicants' representative, David W. Dorton, on May 8, 2006. During the interview, independent claims 1, 8 and 34 were discussed with respect to the references of record, including JP11-156,676 to Ogiwara. Applicants' representative asserted that Ogiwara '676, alone or in combination with other references of record, fails to teach or suggest the inventions recited in independent claims 1, 8 and 34, as discussed more fully below. Claims 2, 9, 24 and 29 were also discussed with respect to the objections to those claims as being duplicative. The Examiner indicated that the objections to claims 2, 9, 24 and 29 would be removed once these claims were determined to contain allowable subject matter. Applicants respectfully request reconsideration in view of the personal interview and the following remarks.

Claims Rejected Under 35 U.S.C. §102

Claims 1, 2, 5, 24, 25 and 34 stand rejected under 35 U.S.C. §102(b) as being anticipated by Japanese Patent No. JP11-156,676 to Ogiwara. Claims 1 and 34 are the only independent claims of this rejected group. Claim 1 is directed to an apparatus for

monitoring the operation of a heating device having at least one heating element moving periodically along a predefined path, the apparatus including:

> a first sensor configured to sense the presence of the heating element as the heating element moves past the first sensor;
>
> a second sensor mounted to allow movement of the heating element relative thereto and configured to sense a temperature associated with the heating element when said first sensor senses the presence of the heating element; and
>
> a controller coupled with said first and second sensors and configured to monitor said first and second sensors and to perform a control function in response to the temperature sensed by said second sensor.

Similarly, claim 34 is directed to an apparatus for monitoring the operation of a heating device having a plurality of heating elements moving periodically along at least one predefined path, the apparatus comprising:

> a first sensor;
>
> a second sensor adjacent said first sensor;
>
> said first sensor configured to sense the presence of successive heating elements proximate said second sensor as the heating elements move past said sensors along the predefined path;
>
> said second sensor configured to successively sense temperatures respectively associated with the heating elements as the heating elements move past said sensors; and
>
> a controller coupled with said first and second sensors and configured to monitor said first and second sensors and to perform a control function in response to the temperature sensed by said second sensor.

Applicants respectfully traverse the rejections of claims 1 and 34 because Ogiwara '676 does not teach or suggest each and every element recited in these claims. Ogiwara '676 is directed to an apparatus and method for correcting the command location of a CNC cutting tool for errors resulting from thermal expansion of components by heat generated during a machining process. A displacement sensor 26 mounted to a turret box 14 of the machine senses the distance between the turret box 14 and a spindle head 2 as the turret box is moved by ball screws 17, 19 to engage cutting tool 8 with workpiece 4. A temperature sensor 38 mounted to block 30 continuously senses the temperature of cutting fluid ejected through nozzle 28 toward cutting tool 8. The temperature of the cutting fluid is related to the temperature of cutting head 6. A controller on the machine utilizes signals from the sensors to determine a correction to be applied to a position command for cutting tool 8 to account for errors resulting from thermal expansion.

Ogiwara '676, therefore, does not teach or suggest a first sensor configured to sense the presence of a heating element as the heating element moves past the sensor, or a second sensor configured to sense the temperature of the heating element, as recited in independent claim 1. Although the temperature of turret head 6 passively increases as result of machining operations performed on work piece 4, neither the turret head 6 nor the spindle head 2 are "heating elements" consistent with the specification of the present application. Moreover, first sensor 26 is mounted turret head 6 via turret box 14. Turret head 6, therefore, cannot move past sensor 26, and

sensor 26 cannot sense the presence of turret head 6 as it moves past the sensor, as required by claim 1.

Even if spindle head 2 were alleged to be a heating element, Ogiwara '676 still fails to meet the language of claim 1 because sensor 38 senses a temperature associated with the turret head 6, not spindle head 2. Accordingly, temperature sensor 38 would not sense a temperature of the spindle head 2 as it moves past sensor 26, as required by claim 1. Finally, neither turret head 6, nor spindle head 2, moves periodically along a predefined path. Rather, turret box 14 is moved in orthogonal X and Z directions by ball screws 17, 19, respectively, to engage cutting tool 8 with a work piece 4 that is mounted to spindle head 2. For at least these reasons, Ogiwara '676 fails to teach, or even suggest, all elements of claim 1.

For the same reasons discussed above, Ogiwara '676 does not teach or suggest a first sensor configured to sense the presence of successive heating elements proximate a second sensor as the heating elements move past the sensors along a predefined path, or a second sensor configured to successively sense temperatures respectively associated with the heating elements as the heating elements move past the sensors, as recited in claim 34. For at least these reasons, Applicants respectfully request that the rejections of claims 1 and 34 based on Ogiwara '676 be withdrawn.

Claims 2, 5, 24 and 25 each depend from independent claim 1, and are therefore in condition for allowance for at least the reasons stated above for claim 1. Accordingly, Applicants respectfully request that the rejections of claims 2, 5, 24 and 25 based on Ogiwara '676 be withdrawn.

Claims Rejected Under 35 U.S.C. §103

Claims 1, 2, 5, 24, 25 and 34 stand rejected under 35 C.F.R. §103(a) as being unpatentable over U.S. Patent No. 6,035,604 to Gustafsson in view of Ogiwara '676. Claims 1 and 34 are the only independent claims of this rejected group and are directed to apparatus for monitoring the operation of a heating device, as discussed above. Applicants traverse the rejections of claims 1 and 34 because Gustafsson '604 does not teach or suggest each and every element recited in claims 1 and 34, and the combination of Gustafsson '604 with Ogiwara '676 fails to cure these deficiencies.

Specifically, the Examiner admits that Gustafsson '604 does not teach or suggest first and second sensors, wherein the first sensor is configured to sense the presence of a heating element as it moves past the first sensor, and the second sensor is configured to sense a temperature associated with the heating element when the first sensor senses the presence of the heating element, as recited in claim 1. (Final Office Action dated March 29, 2006, at page 5.) Similarly, the Examiner admits that Gustafsson '604 does not teach or suggest a first sensor configured to sense the presence of successive heating elements proximate a second sensor as the heating elements move past the sensors along a predefined path, and a second sensor configured to successively sense temperatures respectively associated with the heating elements as the heating elements move past the sensors, as recited in claim 34. (Final Office Action at page 5.) Ogiwara '676 is directed to an apparatus and methods for correcting errors resulting from thermal expansion of a work piece, as discussed above, and does not teach or suggest a modification of Gustafsson '604 that cures these deficiencies. Specifically,

sensor 26 in the device of Ogiwara '676 does not sense the presence of a heating element as it moves past the sensor, and sensor 38 does not sense the temperature associated with a heating element as the heating element moves past the sensors, as discussed above.

Moreover, Applicants assert that there is no motivation to even combine Gustafsson '604 with Ogiwara '676, as alleged by the Examiner. Specifically, Gustafsson '604 is directed to a packaging unit for producing sealed packages, while Ogiwara '676 is directed to an apparatus and method for correcting the effects of thermal expansion in a CNC cutting tool. Gustafsson '604 does not disclose the need to accommodate thermal expansion of components of the packaging unit, and Applicants assert that persons skilled in the art would not have looked to Ogiwara '676 to modify the apparatus of Gustafsson '604. For at least these reasons, Applicants respectfully request that the rejections of claims 1 and 34 based on the combination of Gustafsson '604 and Ogiwara '676 be withdrawn.

Claims 2, 5, 24 and 25 each depend from independent claim 1, and are therefore in condition for allowance for at least the reasons stated above for claim 1. Accordingly, Applicants respectfully request that the rejections of claims 2, 5, 24 and 25 based on Gustafsson '604 in combination with Ogiwara '676 be withdrawn.

Claims 1, 2, 5, 8, 9, 12, 15-17, 24, 25, 29, 30 and 34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,678,390 to Pruett et al. in view of Gustafsson '604, and further in view of Ogiwara '676. Claims 1, 8 and 34 are the only independent claims of this rejected group. Applicants respectfully traverse the

rejections of claims 1, 8, and 34, because Pruett '390 fails to teach or suggest each and every element recited in these claims, and the combination of Pruett '390 with Gustafsson '604 and Ogiwara '676 fails to cure these deficiencies. Specifically, the Examiner admits that Pruett '390, alone or in combination with Gustafsson '604, fails to teach or suggest a first sensor configured to sense the presence a heating element it move past the first sensor, and a second sensor configured to sense temperature associated with the heating element when the first sensor senses the presence of the heating element, as required by claims 1 and 8. The Examiner also admits that the combination of Pruett '390 and Gustafsson '604 fails to teach or suggest a first sensor configured to sense the presence of successive heating elements proximate a second sensor, and the second sensor being configured to successively sense temperatures respectively associated with the heating elements as the heating elements move past the sensors, as required by claim 34. Ogiwara '676 fails to teach or suggest a modification of Pruett '390 or Gustafsson '604 that cures these deficiencies. Specifically, Ogiwara '676 fails to teach or suggest first and second sensors configured as set forth in claims 1, 8 and 34, for the reasons discussed above. For at least these reasons, Applicants respectfully request that the rejections of claims 1, 8 and 34 based on Pruett '390 in combination with Gustafsson '604 and Ogiwara '676 be withdrawn.

Claims 2, 5, 24 and 25 each depend from independent claim 1, and claims 9, 12, 15-17, 29 and 30 each depend from independent claim 8. Claims 2, 5, 9, 12, 15-17, 24, 25, 29 and 30 are therefore in condition for allowance for at least the reasons stated

above for independent claims 1 and 8. Accordingly, Applicants respectfully request that the rejections of claims 2, 5, 9, 12, 15-17, 24, 25, 29 and 30 be withdrawn.

Conclusion

In view of the personal interview conducted May 8, 2006, and the remarks set forth herein, Applicants believe this case is in condition for allowance and respectfully request allowance of the pending claims. If the Examiner believes any issue requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicants are of the opinion that no fee is due as a result of this amendment. If any charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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